

#### Remarks

Claims 1-24 were pending in the application. Claims 1-24 were rejected. No claims were merely objected to and no claims were allowed. By the foregoing amendment, no claims are canceled, claims 7, 8, and 11 are amended, and no claims are added. No new matter is presented.

#### Claim Rejections-35 U.S.C. 112

Claims 1-11, 23, and 24 were rejected under 35 U.S.C. 112(2). Applicant respectfully traverses the rejection.

The Office asserted the terms “TM-like mode” and “TE-like mode” were indefinite. Attached is documentary evidence that these are recognized as terms of art. These were merely drawn from a basic Google search for “TM-like” and/or “TE-like”. The Office may wish to run its own search (e.g., for such terms in combination with “waveguide” which still yields approximately a thousand results).

In claim 8, the Office unreasonably read all meaning out of “diameter” and requested clarification of the term (i.e., that it is the diameter of the cylindrical portion of cavity). This has been done.

#### Claim Rejections-35 U.S.C. 102

Claims 7, 8, 11, and 12 were rejected as being anticipated by Lanier et al. (WO01/33978). Applicant respectfully traverses the rejection.

The Office asserted: “Lanier et al discloses an apparatus for heat treating a biomaterial using at least one cylindrical microwave cavity wherein same is shown for heating packaged liquid material and, therefore, would be capable of treating inshell egg...” Office action, page 3, lines 3-6 of §4. The Office has not addressed the fact that claim 7 affirmatively recites the eggs and also recites the differential yoke/albumen heating. It has not been established that Lanier et al. would provide this. If the Office believes any further amendment is necessary for clarification, the examiner is requested to telephone the undersigned to discuss such amendment.

Furthermore, the nature of the asserted cavities are unclear. Regarding the cavity orientation and aspect ratio, the Office asserted: “Lanier et al. further discloses the cavity being positioned longitudinally (i.e. cylindrical) wherein said cavity has a length which is inherently less than countless diameter values (see Figures 1a, 1b).” Office action, page 3, lines 8-11 of §4.

This is unclear and apparently unreasonable. What does “i.e. cylindrical” mean? The Office reads all meaning out of diameter as noted above. This is clearly contrary to how the claim would be read/interpreted by one of ordinary skill in the art or in common and ordinary usage. The Office’s citation of the paragraph spanning pages 11 and 12 of Lanier et al. highlights unreasonableness of the apparent interpretation and highlights teaching away from the geometry of claim 7. This paragraph mandates “an elliptical shape that directs the electromagnetic wave...” in distinction to a right circular cylindrical microwave cavity. However, regarding the reference to cylindrical cavities, there is no basis that the cited page 8 text would, suggest the claimed combination. That passage merely purports to address multiple cylindrical or other cavities or other processing techniques. It does not, however, render all possible techniques unpatentable. It clearly does not suggest the particular combination of claim 11.

Additionally, regarding claim 12, there has been no application of 35 U.S.C. 112(6) under *In re Donaldson*.

Claims 7, 8, and 12 were rejected under 35 U.S.C. 102(b) as being anticipated by Skubich (US4896005). Applicant respectfully traverses the rejection.

In an unreasonable linguistic bootstrapping contortion, the Office asserted that Skubich “would be capable of treating shelled eggs (a naturally formed, packaged food article) and heating the contents therein at a temperature commensurate with pasteurizing the articles therein.” Office action, pages 3-4. Skubich discloses “wave guides or microwave feed ducts” 8 and 9 having exit orifices oriented toward a flow of “packaged plate meals 14” on a “conveyor belt 4”. No use with eggs is suggested and the differential of claim 7 is not suggested. Additionally, the Office has failed to identify the cavity. Clearly, the wave guides 8/9 are not oriented longitudinally along the flowpath but are oriented normal to and facing the flowpath. Claim 7 has been amended to further emphasize that the flowpath passes through the cavity.

A yet more unreasonable characterization of the cavity aspect ratio and orientation was identified suffering the same deficiencies noted above relative to Lanier et al.

The Office similarly failed to apply 35 U.S.C. 112(6) to claim 12 under *In re Donaldson*.

Claims 7-9 and 12 were rejected under 35 U.S.C. 102(b) as being anticipated by Tran (US4631380). Applicant respectfully traverses the rejection.

The Office made essentially the same citations regarding Tran as Lanier et al. and Skubich. Thus, the rejection suffered the same deficiencies.

The Office found the word “waveguides” in the Background section of Tran but has not, in turn, established inlet and outlet waveguides. In the Detailed Description and drawings, we see “vertically spaced pairs of microwave generators 7, 8, 9, 10 and 11” around a passageway 4. Col. 4, lines 18&19. To this extent, the structure appears to resemble Skubich. No apertures, etc. have been identified/shown.

The Office similarly failed to apply 35 U.S.C. 112(6) to claim 12 under *In re Donaldson*.

#### Claim Rejections-35 U.S.C. 103

As is seen above in the anticipation rejections, the Office has merely found several words in common with the references while ignoring both other words and ignoring other claim elements and ignoring what structures those words actually represent and how one of ordinary skill in the art would view them. This background fact finding/interpretation failure carries through to the obviousness rejections wherein no appropriate findings and interpretations have been made, let alone a *prime facie* case laid out under *Graham v. John Deere*. For example, in each of the rejections below, the Office has failed to identify the art, the person of ordinary skill in the art, the goal of such person, and the course of a *prime facie* case as to how one of ordinary skill in the art arrives at the claimed invention.

Claims 13-16 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lanier et al. Applicant respectfully traverses the rejection.

The Office hypothesized cooling during transport as satisfying the claim 13 “first means for precooling”, the claim 15 preferential precooling, and the specific claim 16 preferential precooling sufficient to produce a 2 log kill of salmonella in the albumen. The Office specifically asserted “it would have been further obvious to have maintained the eggs in a chilled state from the farm to the point of pasteurizing to minimize these ill-effects otherwise expected.” Office action, page 5, lines 6-8. The claim 16 result was asserted as having been “routine experimental optimization.” This ignores several issues. First, it ignores the requirement that claim 13 (and 15) be interpreted under the appropriate rules for interpreting “means-plus-function claims” as set forth in the case of *In re Donaldson*. Second, it ignores the preferential cooling specified in

claims 13, 15, and 16. Third, it ignores the fact that a 2 log kill would only be achievable if the optimization were for the purpose of providing such a kill in hindsight of the present teachings. It would not be obvious to provide such a degree of cooling merely for transport even if cooling for transport were suggested. For example, a mere refrigeration might merely retard growth rather than achieve any kill. Finally, as further highlighting the failure to engage in appropriate *Graham v. John Deere* fact finding, it has not been established how/why one of ordinary skill in the art would integrate the hypothesized cooling (e.g., cooling for transport seems more suggested to be a post-cooling rather than a pre-cooling).

Claims 1-6, 9, and 17-24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Lanier et al. and Davidson (US6632464). Applicant respectfully traverses the rejection.

The Office asserted that Lanier et al. disclosed “concentrated heating in the center of the biomaterial or in other selected areas of same (e.g. TM and TE modes; see page 12, lines 3-24).” Office action page 5, lines 21-23. It is not clear how the Office is finding reference to TM and TE modes (see discussion below). Clarification and support is requested. The Office further asserted Lanier et al. as disclosing “microwave cavities comprising endwalls with apertures (see Figs. 1a and 1b)”. Office action, page 6, lines 1&2. Again, this is not substantiated.

The Office then repeated the “naturally packaged food material” canard and asserted that it would have been obvious “to have applied the teachings of Lanier et al to inshell egg as same is a form of packaged food.” Office action, page 6, lines 8&9. This is an unreasonable verbal bootstrapping of asserting an overly broad characterization of the reference and then asserting that, because eggs fall within that overly broad characterization, use on eggs would be obvious (in the absence of any coherent reason why one of ordinary skill in the art would have actually used it on eggs, let alone with any expectation of success). The Office’s unreasonable assertions are further clearly rebutted by the teachings of Lanier et al. For example, Lanier et al. overwhelmingly emphasizes gel formation: “The invention uses rapid heating to effect a material property change defined as thermal gelation.” Page 6, lines 3&4. Wouldn’t this involve cooking the eggs (contrary to claim 22)? Second, Lanier et al. expressly identifies eggs in the context of “thermo-formed egg or modified egg omelettes...” WO ‘978, page 6, last two lines. This indicates that any processing of eggs would involve mixed yolk and white and would involve cooking. In this context, the absence of addressing use on shell eggs is glaring. Clearly, had such

use been obvious, it would have been mentioned.

At pages 6-8, the Office made further characterizations regarding Davidson. This is actually more intriguing because Davidson, unlike the other references, does actually identify the pasteurization of shell eggs. First, this clearly highlights the Office's failure to make appropriate findings under *Graham v. John Deere*. For example, if the art is egg pasteurization, why isn't one of ordinary skill in the art starting with Davidson? Why would one be starting with a reference from a different field. Second, Davidson col. 6, line ~25 contains an offhand reference to microwaves and then immediately teaches away from it by suggesting use of a fluid heat transfer medium. Davidson then goes on to identify particular processing temperatures. The Office admits that Lanier et al. does not articulate the combination of TM and TE modes in successive microwave cavities. The Office then has the merely conclusory assertion that:

absent a showing of unexpected results, it would have been obvious to one having ordinary skill in the art at the time of the invention to have employed differing consecutive microwave heating modes as a matter of preference depending on the particular areas of the food desired for heating.

Office action, page 6, lines 12-16. No legal basis has been cited for this proposition. It is also not clear how this statement relates to the Office's prior reference "e.g. TM and TE modes" cited above.

The Office then asserted:

it has long been known that the yolk and egg white of the inshell egg require different heating treatments to provide a desired microbial kill without coagulating either the yolk or the egg white as taught, for example, in Davidson.

Office action, page 6, lines 17-20. However, the Office has provided no basis for this knowledge or basis for how to interpret this (i.e., what path such knowledge would cause one of ordinary skill in the art to take). The Office then had the conclusory assertion that:

One skilled in the art recognizing the difficulty in pasteurizing to a particular degree both yolk and egg white still in the shell as taught, for example, by Davidson would also recognize, therefore, that microwave treatment may generally be employed for such treatment.

Office action, pages 6&7. This, of course, ignored the specific teaching away of Davidson and, therefore, the requirement to consider the teachings of the prior art as a whole. The Office then cited page 12, lines 3-24 of Lanier et al. as providing "further direction as to how one might heat different select areas of food articles" Office action, page 7, lines 2&3. However, the cited

passage provides the desired gelling of its particular food product. It has not been established that it would have been obvious to apply to shell eggs, let alone how it would be applied to shell eggs with any expectation of success (especially where success involves not gelling).

In the first full paragraph of page 7, the Office had the merely conclusory assertion that the particular cavity geometry, etc., “would have been well within the purview of a skilled artisan” and/or “a matter of preference” and/or “routine experimental optimization.” No basis has been established for any of this. Clearly, the present operation is not within the zone of such optimization, etc. Such optimization, etc., would be appropriate in a situation wherein a prior art system for pasteurizing chicken eggs is being modified for pasteurizing ostrich eggs.

Similarly, in the final paragraph of page 7, there are merely conclusory assertions regarding the level of microbial kill and particular temperatures. There is no basis for asserting that these would be obvious or attainable in the context of any particular implementation or modification of the prior art.

The assertions in the first paragraph of page 8 are nonsequiturs. Even if rotation is known, no basis for a combination with Lanier et al. has been established. Similarly, the parameter adjustment has not been established.

Claim 10 was rejected under 35 U.S.C. 103(a) as being unpatentable over Lanier et al. and Davidson and Cox et al. (US5939118). Applicant respectfully traverses the rejection.

The rejection suffers the same deficiencies as does the underlying Lanier et al. rejection and Lanier et al./Davidson rejection.

Cox et al. was asserted as disclosing cooling and the Office then, in turn, bootstrapped that, asserting that it would have been obvious to incorporate a cryogenic chiller “as a matter of preference depending on, for example, the particular degree of cooling desired, the cost of cooling equipment, and the cooling equipment which is readily available.” Office action, page 9, lines 6-9.

The Office has not provided any support for the assertion that a cryogenic chiller is “notoriously well known” either generally or in a manner sufficiently related to the egg processing field so as to suggest its use in a combination, let alone in the claimed manner.

Accordingly, Applicant submits that claims 1-24 are in condition for allowance.

Reconsideration and further examination are requested. Please charge any fees or deficiency or credit any overpayment to our Deposit Account of record.

Respectfully submitted,

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- Enclosures:
- (1) Curvilinear Hybrid Edge/Node Elements with Triangular Shape for Guided-Wave Problems, Masanori Koshiba et al., Journal of Lightwave Technology, Volume 18, No. 5, pages 737-743, May 5, 2000.
  - (2) Width Dependence of Inherent TM-Mode Lateral Leakage Loss in Silicon-On-Insulator Ridge Waveguides, M.A. Webster et al., March 15, 2007, Abstract.
  - (3) TM-like and TE-like Modes Coupling in a Two-Dimensional Photonic Crystal Slab Composed of Truncated Cone Silicon Rods, Xiong Zhi-Gang et al., Issue 6, June 2008, Abstract